

# Curriculum vitae

## 1. Qualifications

BSc. Physics - First class (Honours). 1983 - 1986  
University College Swansea, Singleton Park, Swansea.

(See [http://en.wikipedia.org/wiki/British\\_undergraduate\\_degree\\_classification](http://en.wikipedia.org/wiki/British_undergraduate_degree_classification) for an explanation of the British degree system.)

Diploma in Analytical Physics. 1986 - 1987  
University College Swansea, Singleton Park, Swansea.

PhD. Chemical Physics. 1987 - 1991  
University College of Swansea, Singleton Park, Swansea.

Project summary: Examination of the energetic structure of matter i.e. measurement of ionisation energies, fragmentation energies, electron affinities, excited state energies, particle lifetimes, fragmentation patterns etc.

**Prize.** Winner of the Mary Williams Travelling Scholarship, 1989.

This award provided funds for a period of study overseas and is awarded to the student judged to have submitted the best application for the prize. I was the first scientist to win this prize and used it to accept a personal invitation from Professor Paul Fournier, Universite de Paris-sud. I joined his research team for a period of four weeks in the Spring of '89. Three major publications resulted from this period and ensuing collaborations.

## 2. Work record

### 2.1 Academic posts

#### **Postdoctoral Research Fellow**

The Chemical Laboratory, University of Kent, Canterbury. 1991 -1995

Project. The application of ion trap spectrometry to atmospheric monitoring. The development of a high sensitivity ion trap spectrometer for the detection of trace quantities of explosive vapours in ambient air. During this time I worked on a variety of rf ion trap development projects and supervised MSc and PhD students.

### 2.2 Government laboratory posts

#### **Senior scientific officer**

DERA Fort Halstead, Sevenoaks, Kent TN14 7BP. 1995 - 1997

Leader of the trace particle and vapour explosive detection group. Responsibility for the initiation and item management of projects tackled by this group and the supervision of seven graduate/PhD scientists.

I continued and expanded the range of topics tackled by the group. Projects included the development of ionisation sources and ion detection instrumentation. New areas of research introduced into the group by myself included atomic force microscopy, the development of novel ion sources and detectors, the development of mass spectrometry for explosive detection, theoretical and experimental work on membranes and vapours, studies on microscopic particles and their interactions with surfaces and swabs.

In addition, I headed up the group that carried out the very high profile UK Department of Transport Baggage Trial. The Trial posed fundamental experimental problems and thus required the development of a wide range of techniques in order to make the investigation valid. This work received a considerable degree of international attention and commendation and the results were used to determine trace detection protocols at airports in the US, Israel and UK. Other research projects were also internationally recognised as important fundamental work. This included fundamental work on the form of explosive contamination carried out using atomic force and optical microscopy.

#### **Technical Manager Chemical and Physical Detection**

DERA Fort Halstead, Sevenoaks, Kent TN14 7BP.

1997 – Oct 00

##### **a. Technical Management**

The initiation and development of R&D programmes to produce sensors for explosive and drug detection. Areas of responsibility were X-ray and neutron techniques, quadrupole resonance, millimetre wave, trace and vapour detection.

The provision of technical advice on detection issues to the MoD, UK government Customers and DERA. Technical consultant to the MoD on procurement within my technical area and I also worked as consultant to the US FAA on trace and vapour detection issues.

Development and management of mine detection and drugs detection projects.

Founding member of the UK Drugs Detection Working Group. This Working Group was made up of representatives from the various UK government bodies with an interest in drugs detection.

##### **b. Programme Management**

Programme manager of the UK Department of Transport R&D equipment development programme at DERA in support of transport security. This programme tackles the development of instrumentation for explosive detection and people and item screening at airports and ports of entry.

#### **Deputy Chief Scientist**

DERA Fort Halstead, Sevenoaks, Kent TN14 7BP.

Oct 00 – July 01.

Responsible for technical quality across my DERA sector, review of research projects, special responsibility for blue sky projects and encouragement of innovation.

## **2.3 Industrial posts**

#### **Detection for Security (D4S) Ltd.**

**Aug 01 - present**

I left DERA to set up my own consultancy business when DERA was split and 75% privatised becoming QinetiQ and Dstl.

D4S primarily carries out work in the following areas:

- Advice to procuring organisations on available equipment, equipment customisation, equipment test/evaluation and methodologies for best use.
- The evaluation of technologies for the purposes of investment, partnership or other.

- Technical advice and assistance on the development of emerging technologies for the detection of explosives, drugs, CB agents, other illicit materials, smuggled people and landmines.

Since D4S was founded I have carried out work for technology companies, potential investors/venture capitalists and government departments all round the world including Australia, the Middle East, USA, Europe and China.

**ICTS Europe (<http://www.ictseurope.com>)**  
**Science and Technology Advisor**  
**Manager VeriSys Services**

**May 05 – present**

I am employed by ICTS Europe as their Science and Technology Advisor and as the manager of the VeriSys equipment test and evaluation service.

ICTS Europe is the biggest supplier of aviation security screening services in Europe. It's main area of business is the provision of trained security staff to run the security equipment at airports. They also work in the areas of port and maritime security and canine olfaction.

VeriSys is an independent security equipment test and evaluation service mainly carried out on ICTS's secure site in France and at a number of sites in the UK. Manufacturers are able to bring their equipment to the ICTS laboratory where it is independently tested against an agreed test protocol under NDA.

Alternatively ICTS VeriSys can provide equipment developers with a very wide range of explosive threat (including homemade) and narcotic materials for use at sites in the UK and/or France. The client can carry out their own tests using these materials.

#### **4. Security clearance**

I am cleared by the UK Ministry of Defence to handle classified information up to the level of SECRET.

#### **5. Publications, presentations and inventions**

My work has been extensively published with 25 papers in peer reviewed scientific journals and a chapter contributed to a book on ion trap mass spectrometry. I also hold three patents – two of which have been licensed.

I have presented numerous oral and poster presentations. This includes a Keynote talk on the development of instrumentation for aviation security given at the SPIE, Orlando 2000 and Organiser and principal Chair at the ICAO (International Civil Aviation Organisation) Workshop, Sunningdale College, UK, October 1999.

I chaired the Trace and Vapour Detection Session at the Gordon Conference on Illicit Substance Detection, Connecticut, US, July 2000 and chaired the X-ray Detection session at the Gordon Conference on Drugs Detection, Oxford, July 2002. I gave an invited talk on 'Emerging Technologies for Aviation Security' at the IATA AvSec World 2003, Athens and a talk on the establishment of an equipment test centre by ICTS Europe at AvSec World 2005, Geneva.

More recently I gave an invited Keynote talk on radiation detection equipment at the 3rd NBC International Conference & Exhibition, Sonthofen, Germany Oct-2007, a talk on RASCargO at Dubai Airport Expo, June 2008 and was an invited speaker at the

plenary session at the 2nd TSA Workshop on Trace Explosives Detection, Baltimore, April 2010.

In 2007, I acted as an expert witness in a US court case. The area of expertise was explosives detection and detection equipment.